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	Section 1	
	<p>1a) Wheel easy wheelbarrow - Mild steel frame</p> <p>is suitable here as mild steel is malleable,</p> <p>And means Mild steel is also ductile, this means that the frame will not fracture under pressure - ^{as it} can stretch. Also Rubber is suitable for the type type as it is durable, this means that it will not wear wear away easily. It can tolerate daily use.</p> <p>Rubber is also provides grip. UV protected waterproof cloth is hygienic as it can be cleaned easily - ^{washing} Machine.</p> <p>Endurance wheelbarrow - is Nylon is a suitable material for the wheel as it is light and hard, this means that the overall weight is reduced making the product easier to move. is Good strength-to-weight ratio. Nylon is also is chemical resistant, this</p>	



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	means that it will not dissolve/wear	
	away - this is suitable when used	
	on grass ^{as chemicals used} . Furthermore polypropylene is	
	used in the handle as it is available	
	in a variety of colours - enhances	
	aesthetic appeal. The availability of resource	
	Polypropylene is an available resource.	
	Mild steel frame is hygienic and can be cleaned.	
	b) A raw manufacturing process which could	
	be used	
	wheelbarrow - A manufactured extrusion	
	a extruder could be used for the tubular	
	frame, this is suitable as extrusion produces	
	components with a uniform cross section -	
	can easily be cut down to size. The	
	wheel could be produced by injection	
	moulding, this is suitable as it produces	



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e)	<p>Physiology - This has influenced the design of the wheelbarrows as both need to be light enough to be pushed around easily - how much force the wheelbarrow needs requires to push should be considered. How much force is required to to detach and put and take off the waterproof cloth in the wheelbarrow should be considered. Furthermore the effort it takes to turn the wheelbarrow.</p>	
	<p>Psychology - This would have influenced design as the wheelbarrow must look easy to use, the consumer should know how to work it by looking at it. Also the wheelbarrow must look safe to use. e.g. no finger traps.</p>	



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d)	<p>A functional issue is can the product do what it is designed to do - transport/carry objects/load. Furthermore, Function will influence design as the wheelbarrow should be safe to use for all users. In addition, the wheelbarrow should be able to tolerate everyday/frequent use without damaging. Wheelbarrow should be strong enough to support a load without breaking - especially the wheeleasy wheelbarrow.</p> <p>The hygiene/Ease of Clean is another functional need. The ability to be stored.</p>
e)	<p>A benefit of using standard components in the production process is that it reduces overall they are cheap and can be ordered in bulk, this means reduced costs. Benefits from Economies of scale. Furthermore they require lower skilled labour, ^{for assembly}</p>



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	<p>This means that costs are reduced.</p> <p>the use of lower prices can be charged as cost of manufacture manufacturing is reduced, this means more customers or therefore increased sales and profits.</p> <p>Standard components are require less packaging, this also means reduced costs and increased per profits.</p>	
	<p><u>Section 2</u></p>	
	<p>(a) A benefit of using laminated wood for these parts is that it improves the durability of the product, this means fewer scratches therefore maintains aesthetic appeal. Another advantage is laminated wood is relatively cheap, this means reduced costs for the manufacturer and increased</p>	



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	<p>Profits. Furthermore, another benefit is</p>	
	<p>it also provides strength to the product,</p>	
	<p>this means the product is more strong and</p>	
	<p>stable, this process increases durability.</p>	
	<p>Aesthetic appeal of smooth surface, this</p>	
	<p>means more customers.</p>	
	<p>b) Die casting was used as it produces components</p>	
	<p>with a very high degree of accuracy, this</p>	
	<p>means reduced wastage. Another Reason</p>	
	<p>is Die casting produces an excellent surface</p>	
	<p>finish, this means cost are reduced as</p>	
	<p>no need for further finishing. Mass</p>	
	<p>production, which means benefits from</p>	
	<p>economies of scale.</p>	



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	<p>c) Flowchart - This could could be used as method of to ensure efficient manufacture as it allows for planning of materials to; this means efficiency improved as ^{if} the manufacturer follows sticks to the flowchart there will be more less wastage.</p>	
	<p>CAD - This can be used as the changes / Alterations can be easily made, this means less wastage as changes to increase efficiency can be made more quickly.</p>	
	<p>CNC - This improves efficiency as it is very accurate, this means reduced wastage of material. Furthermore it produces can run 24/7, this means increased productivity and efficiency.</p>	
	<p>Gantt Charts - This shows the how operation should be, this means processes can be monitored and changes made if required, this improves efficiency.</p>	



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3a)	<p>A benefit of rotational moulding is that it produces components that are accurate, this means reduced waste and increased profits. Furthermore rotational moulding produces a good surface finish, this means that reduced costs due to less finishing required. Another benefit is that it is a relatively inexpensive process compared to other methods, this means reduced costs and increased profits.</p>
b)	<p>ABS - This could be used as it has a high impact strength. Another reason is because it is scratch resistant. Available in a variety of colours.</p>



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c)	<p>One safety issue is the stability of the product - must not fall over when it is used. Another safety issue is it must avoid finger traps or sharp edges.</p>	
d)	<p>The use of green materials in manufacture of products is one method. Another method is making products recyclable and reusable. Furthermore they could reduce the amount of packaging of the product. Also manufacturers could introduce better quality assurance methods, this would mean less defects and less wastage. Use sustainable material such as softwood instead of hardwood. Provide information on recyclability to the user. The use of upcycling.</p>	



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4a)	<p>The needs of the building market has been targeted influenced design as the product incorporates similar colour themes with building - ^{eg} yellow and black JCB machinery. Also influenced design as it is portable which is required by builders. Furthermore made from durable material which is required on a building site. Needs of builders has have influenced design as both in terms of function builders require a tool which the product which can recharge recharge their tools.</p>	
b)	<p>Anthropometrics has been considered by the width and length of the handle - should accommodate the size of the ^{user's} user's hand. Furthermore the height height of the handle has been considered as it should provide enough room to an allow</p>	



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	Enough room for easy and comfortable pick up. The battery compartment with the charger should be the correct size to charge tools.	
c)	user trials - This is when the new product is tested by consumers. Could be specifically tested on a building site. Builders & thoughts and feedback can be recorded and evaluated.	
d)	A benefit of a strong brand image is that consumers with it is easier to identify ^{with brand} products, this means increased sales and ^{easier to launch new products.} Brand loyalty can develop, this means means more customers and profits. Lower to launch Higher prices can be charged as consumers are willing to pay, this means	



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	<p>as carrying out internally, this means ^{inaccurate} correct representation which could lead to costly mistakes such as not fitting consumer needs.</p>	
c)	<p>Another idea generation technique is taking a pencil 'for a walk' around a piece of paper. This creates a starting shape which can be built upon by the designer.</p> <p>Another idea generation technique that could be used is looking at pictures of other designs. This can provide a shape / details of the concept.</p>	
6)	<p>Designs Aesthetics have also influenced the design of many products. For example the shaping of TV's have been changed new design areas. The aspect of shape has influenced design for example new TV's being produced are may be curved e.g. Samsung TV's this increased factor increases</p>	



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	<p>aesthetic appeal. Furthermore the shape of products</p> <p>Such as Apple iPhone - being made slimmer, with a bigger shape larger screen. Colour is another aspect of aesthetics which influences design.</p> <p>For example Nike design shoes ^{sports} shoes with vibrant colours to appeal to people. Contrast is also an aspect of aesthetics, a product influenced by contrast is dairy with milk chocolate bar with vibrant and bright purple with white, this is eye catching and influences design as it results in more sales. Materials also influence aesthetics, for example Apple iPhone 6 uses an Aluminium sides for a premium feel. This results in increased sales and profits. Texture influences design of products. For example new Samsung S5 S5 smartphones include dotted backs for a ^{enhanced} enhanced feel. ^{TV's with slimmer bezels} new terms for aesthetic appeal.</p>	



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